

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. **(Currently Amended)** Method of delivering data from a data input to a data output within a system, comprising

selecting a system performance parameter to be optimized from the group consisting of latency, bandwidth, and safety,

receiving at the data input a sequence of discrete data words in transit to the data output from ~~any source~~ a source from the group consisting of a link input and a memory,

determining an optimum mode of delivery of the data words to the data output so as to optimize the selected performance parameter, and

delivering the data words from the data input to the data output in the determined optimum mode.

2. **(Original)** Method according to claim 1, wherein determining the optimum mode of delivery includes determining at least one of an optimum time and sequence of delivery of the data words.

3. **(Original)** Method according to claim 1, further comprising reordering the data words into a desired sequence before delivering the data words from the data input to the data output.

4. **(Currently Amended)** Method of delivering data from a data input to a data output within a system, comprising

 selecting a system performance parameter to be optimized from the group consisting of latency, bandwidth, and safety,

 receiving at the data input a sequence of discrete data words in transit to the data output from ~~any source~~ a source from the group consisting of a link input and a memory,

 determining an optimum sequence and time of the delivery of the data words to the data output so as to optimize the selected performance parameter, and

 delivering the data words from the data input to the data output in the determined optimum sequence and time.

5. **(Withdrawn)** Method of delivering data from a data input to a data output within a system, comprising

 receiving at the data input a sequence of discrete data words, and

 delivering each data word to the data output without regard to sequence and as soon as possible after the data word is received at the data input, whereby latency is minimized.

6. **(Withdrawn)** Method according to claim 5, further comprising arranging the data words into a preselected sequence before delivering the data words to the data output.

7. **(Withdrawn)** Method of delivering data from a data input to a data output within a system, comprising

receiving at the data input a sequence of discrete data words,
holding at least one of the data words first received at the data input in storage until
additional data words comprising the data packet are received at the data input,
delivering the data words from storage to the data output as the additional data words
comprising the data packet are received at the data input with minimal time gaps between said
data words, and
delivering the additional data words substantially directly from the data input to the data
output as soon as possible after the additional data words are received at the data input, whereby
bandwidth is maximized.

8. **(Withdrawn)** Method according to claim 7, further comprising arranging the
data words into a preselected sequence before delivering the data words to the data output.

9. **(Withdrawn)** Method of delivering data from a data input to a data output
within a system, comprising
receiving at the data input a sequence of discrete data words comprising a data packet,
holding each of the data words received in storage until all data words comprising the
data packet have been received, and
delivering the data words from storage to the data output in the preselected sequence and
with substantially no time gaps between the data words, whereby safety is maximized.

10. **(Withdrawn)** Method according to claim 9, further comprising arranging the data words into a preselected sequence before delivering the data words from storage to the data output.

11. **(Currently Amended)** Method of delivering data from a data input to a data output within a data processing system using a plurality of multiplexed data channels, comprising

selecting a system performance parameter to be optimized for each channel from the group consisting of latency, bandwidth, and safety,

receiving at the data input of each channel a sequence of discrete data words in transit to the data output from ~~any source~~ a source from the group consisting of a link input and a memory,

determining an optimum mode of delivery of the data words to the data output so as to optimize the selected performance parameter for the associated channel, and

delivering the data words from the data input to the data output in the determined optimum mode for each channel.

12. **(Original)** Method according to claim 11, wherein the mode of delivery is different for at least two of the plurality of data channels.

13. **(Currently Amended)** Method of delivering data from a plurality of data sources from a data input to a data output within a data processing system, each source from the group consisting of a link input and a memory, the method comprising

selecting a system performance parameter to be optimized for each source,

receiving at the data input a sequence of discrete data words in transit to the data output from each source,

determining an optimum mode of delivery of the data words to the data output so as to optimize the selected performance parameter for the associated source, the performance parameter selected from the group consisting of latency, bandwidth, and safety, and

delivering the data words from the data input to the data output in the determined optimum mode for each source.

14. **(Original)** Method according to claim 13, wherein the mode of delivery is different for at least two of the plurality of data sources.

15. **(Withdrawn)** Apparatus for delivering data from a data input to a data output within a system to optimize a selected system parameter, comprising
a data input for receiving a sequence of discrete data words,
a data output to which data are delivered, and
at least one data storage element intermediate the data input and data output for storing individual data words for a determined time before delivery to the data output, and at least one path for selectably delivering data to the data output by bypassing said data storage element.

16. **(Withdrawn)** Apparatus according to claim 15, wherein the data storage element is a register.

17. **(Previously Presented)** Method of claim 1, wherein the selected system performance parameter to be optimized is latency, and the delivering step further comprises:
delivering each data word to the data output as soon as possible after the data word is received at the data input, whereby latency is minimized.

18. **(Previously Presented)** Method of claim 1, wherein the selected system performance parameter to be optimized is bandwidth, the method further comprising:
holding at least one of the data words of a data packet first received at the data input in storage until additional data words of the data packet are received at the data input;
wherein the delivering step further comprises:
delivering the data words from storage to the data output as the additional data words of the data packet are received at the data input with minimal time gaps between said data words,
and
delivering the additional data words substantially directly from the data input to the data output as soon as possible after the additional data words are received at the data input, whereby bandwidth is maximized.

19. **(Previously Presented)** Method of claim 1, wherein the selected system performance parameter to be optimized is safety, the method further comprising:
holding each of the data words received in storage until all data words of a data packet have been received;
wherein the delivering step further comprises:

delivering the data words from storage to the data output in a preselected sequence and with substantially no time gaps between the data words, whereby safety is maximized.

20. **(Currently Amended)** Apparatus for delivering data from a data input to a data output within a system to optimize a selected system parameter using the method of claim 1, comprising:

a data input for receiving a sequence of discrete data words from a data source, the data source from the group consisting of a link input and a memory;

a data output to which data are delivered; and

at least one data storage element intermediate the data input and data output for storing individual data words in transit from the data input to the data output for a determined time before delivery to the data output, and at least one path for selectably delivering data to the data output by bypassing said data storage element.